

## REMARKS

This argument is in response to the Office Action dated September 7, 2004. In the Office Action, the Examiner rejected claims 1-2, 4-8, 10-12, 14-19, and 21-32 under 35 U.S.C. § 102(e) as being anticipated by Herz et al., U.S. Patent No. 6,088,722 (hereinafter *Herz*).

No claim amendments are presented herein. Accordingly, claims 1-2, 4-8, 10-12, 14-19, and 21-32 remain pending in the application. For the reasons set forth below, the Applicants respectfully request reconsideration and allowance of all pending claims.

### Traversal of the Rejection of Claims under 35 U.S.C. § 102

Claims 1-2, 4-8, 10-12, 14-19, and 21-32 stand rejected under 35 U.S.C. § 102(e) as being anticipated by *Herz*. A claim is anticipated only if each and every element of the claim is found in a single reference. M.P.E.P. § 2131 (citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628 (Fed. Cir. 1987)). "The identical invention must be shown in as complete detail as is contained in the claim." M.P.E.P. § 2131 (citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226 (Fed. Cir. 1989)).

In support of the rejection of the independent claims, the Examiner uses independent system claim 28 as an exemplary claim, and cites portions of *Herz* in support of this claim. The Applicant considers independent method claim 1 to be a better exemplary claim (claim 28 is a system for performing the method of claim 1), but will follow the Examiner's lead in this response for simplicity.

In support of the rejection of claim 28, the Examiner states:

Herz teaches the invention as claimed (As in exemplary claim 28) including a system comprising: a broadcast system; and one or more client systems coupled to the broadcast system; wherein the broadcast system is coupled to broadcast meta-data to a plurality of client systems, the meta-data including sets of descriptors and/or attributes describing respective pieces of broadcast programming content from among a plurality of pieces of broadcast programming content up for consideration to be included in a future, yet to be scheduled, broadcast (col. 12, lines 26-48 and col. 14, lines 24-26); wherein the plurality of client systems are

coupled to rate in response to a content rating table one or more of the plurality of pieces of broadcast programming content described by the meta-data, the content rating table generated using the meta-data and containing ratings derived from observation of pieces of broadcast programming content having similar descriptors and/or attributes to the descriptors and/or attributes included in the meta-data that have been previously accessed via that client system; (col. 12, lines 26-48 and col. 14, lines 24-64); wherein the one or more client systems are coupled to transmit to the broadcast system the ratings of the plurality of pieces of broadcast programming content (col. 14, lines 17-23); wherein the broadcast system is coupled to select a portion of the plurality of the pieces of broadcast programming content in response to the ratings received from the plurality of client systems (col. 22, lines 64 – col. 23, line 38); and wherein the broadcast system is further coupled to broadcast the selected portion of the plurality of pieces of broadcast programming content (col. 22, line 64 – col. 23, line 38).

Applicant respectfully asserts that each and every element of claim 28 is not taught by *Herz*, and thus the rejection of claim 28 as anticipated by *Herz* is improper and should be withdrawn.

*Herz* clearly does not teach the element of broadcasting meta-data to a plurality of client systems, the meta-data including sets of descriptors and/or attributes describing respective pieces of broadcast programming content from among a plurality of pieces of broadcast programming content up for consideration to be included in a future, yet to be scheduled, broadcast.

In support of *Herz* teaching this element, the Examiner cites col. 12, lines 26-48 and col. 14, lines 24-26, which respectively state,

For explanation purposes, it will be assumed that the initial customer profile is determined from an initial customer questionnaire or ballot. When completing the initial questionnaire, the customer may choose between two voting schemes, one (Scheme A) by characteristics, and the other (Scheme B) by categories. Scheme A is straight-forward. In Scheme A, the customer gives acceptable ranges for all the characteristics which identify a video program. The customer's profile  $\{cv|cv \in CV\}$  is immediately obtained by simply calculating the means of these ranges. In Scheme B, however, the customer gives a specific rating for each of the categories. If  $ccv_{ik}$  is the rating for customer  $i$  for category  $k$ , with a scale of 10 in which zero means least satisfaction with the category and 10 means the greatest satisfaction, the customer's profile  $\{cv_{ik}|cv_{ik} \in CV_i\}$  may be calculated as:

$$cv_{ik} = 1/N_{L'} * \sum_{1'} cc_{kl'} \quad (1' \in L') \quad \text{Equation (1)}$$

where  $L'$  is the set of categories in which  $ccv_{il} = \max_l ccv_{il'}$  and  $N_{L'}$  is the cardinality of  $L'$ . In other words, a customer's rating of a characteristic equals the objective content rating of that characteristic in the customer's most preferred category. If there are multiple most-preferred categories, indicated as ties in  $ccv$ , the objective content ratings can be used.

and

As noted above, one way to establish an initial customer profile is to show an unrated program or portion of a program to a target audience and to assign to the unrated program a combination of the customer profiles of those who actually watched the program or portion of the program from beginning to end or to assign ratings inputted by those who completed a survey. A similar technique may be used for error correction or for creating initial customer profiles. In particular, the customer is exposed to a series of short sections of different video programs. Each section is characterized by a few characteristics, and the assigned characteristic level of each of the characteristics is presented to the customer. The customer is then asked to state his/her most preferred level for the characteristic given the assigned characteristic level for the viewed section of the video program. For instance, if the level of "action" in a section of the movie "First Blood" is assigned a value of 8, the customer may give 4-6 as his/her acceptance range. On the other hand, if the customer strongly disagrees with the assigned characteristic level, he/she may provide his/her own estimation of the level of the characteristic in the presented program section and give his/her acceptance accordingly. Of course, the major advantage of such a "rave review" procedure over ballot completion is that instead of voting on an abstract concept, the customer now makes estimations based on concrete examples.

Since the customer may not be able to remember exactly his/her preferred level of a characteristic that he/she indicated in a previous review or in an original ballot or may not have known his or her assigned initial value for a characteristic, he/she may intentionally or involuntarily repeat the same level for the same characteristic in one review if that characteristic appears in more than one program section, even if that characteristic should not have the same level. Therefore, in a "rave review" a program section with a large variety of characteristics should be selected to avoid repetitions of the same characteristic across several video clips. In addition, the customer should be advised that while making level estimations he/she should concentrate on the features of the current program sections and forget his/her previous ratings.

It is unclear to Applicant how the foregoing correlates with operations concerning broadcasting meta-data to a plurality of client systems, the meta-data including sets of

descriptors and/or attributes describing respective pieces of broadcast programming content from among a plurality of pieces of broadcast programming content up for consideration to be included in a future, yet to be scheduled, broadcast. The foregoing merely describes a way of obtaining an initial customer profile which clearly is not obtained by broadcasting meta-data including sets of descriptors and/or attributes describing respective pieces of broadcast programming content from among a plurality of pieces of broadcast programming content up for consideration to be included in a future, yet to be scheduled, broadcast in any way.

The overall scheme of *Herz* is accurately described by the *Herz* Abstract, which states:

A system and method for scheduling the receipt of desired movies and other forms of data from a network, which simultaneously distributes many sources of such data to many customers, as in a cable television system. Customer profiles are developed for the recipient describing how important certain characteristics of the broadcast video program, movie, or other data are to each customer. From these profiles, an "agreement matrix" is calculated by comparing the recipient's profiles to the actual profiles of the characteristics of the available video programs, movies, or other data. The agreement matrix thus characterizes the attractiveness of each video program, movie, or other data to each prospective customer. "Virtual" channels are generated from the agreement matrix to produce a series of video or data programming which will provide the greatest satisfaction to each customer. Feedback paths are also provided so that the customer's profiles and/or the profiles of the video programs or other data may be modified to reflect actual usage, and so that the data downloaded to the customer's set top terminal may be minimized. Kiosks are also developed which assist customers in the selection of videos, music, books, and the like in accordance with the customer's objective profiles.

The process of Fig. 1 illustrates the operation of *Herz*'s preferred embodiment.

As stated in Col. 25, line 42 – Col 26 line 37 (emphasis added),

FIGS. 1-3 summarize the above-mentioned procedures for establishing customized channels of preferred programs in accordance with the invention.

As illustrated in FIG. 1, a **schedule** of available shows and their characteristics (**content profiles**) is created and stored in a database at step 102. As noted above, the characteristics of the shows may be

determined by "experts" or test groups by completing questionnaires and the like, or the content profiles may be generated from the frequency of usage of certain words in the text of the video programs (the on-line descriptions or the script). Alternatively, the content profiles may be determined by combining the customer profiles of those who "liked" the video program during a "rave review." Preferably, the content profiles are downloaded all at once for a given time period along with the corresponding scheduling data as part of the electronic program guide data and sent via a separate data channel. On the other hand, the content profiles may be transmitted as part of the bit stream of the video program (for digital transmission), in the vertical blanking intervals of the video program (for analog transmission), or by other appropriate means.

At step 104, the customers' preferred characteristics (customer profiles) are created and stored in a database. As noted above, the customer profiles represent the customers' preferences for the program characteristics and preferably differ in accordance with the time of day to account for different moods of the customer and different customers within each household. In a preferred embodiment, the customer profiles for each household are stored in the set top multimedia terminal for that customer's household.

The content profiles received with the electronic program guide data are preferably stored at the set top multimedia terminal and compared by the set top multimedia terminal to the customer profiles for each customer. An agreement matrix is then created at step 106 using the techniques described above. Once the agreement matrix has been generated, those programs with the highest values for  $ac$ , *i.e.*, the closest distance ( $1/ac$ ) and hence closest match to the customer's profile or profiles, are prioritized and selected for presentation as "virtual channels" (in the case of creating "virtual channels" at a set top multimedia terminal) or as the programming channels (in the case of scheduling video programming at the CATV head end) at step 108. This process is described in more detail herein with respect to FIG. 2.

In a simple embodiment of the invention in which no feedback is used to update the customer profiles, no further activity is necessary. However, it is preferred that the customer and/or content profiles be updated to allow for changes in the customers' preferences as well as to correct errors in the original determinations of the profiles. Accordingly, at step 110, the customers' set top multimedia terminals maintain a record of the video programs that are actually watched by the customer for a period of time (say, 10 minutes) sufficient to establish that the customer "liked" that program. Of course, the monitoring function may be selectively activated so that the profiles are not always updated, as when a guest or child takes control of the television at an unexpected time.

Finally, at step 112, the customers' profiles are updated to reflect the programs actually watched by the customers. Such updating techniques are described above and further below with respect to FIG. 3.

As discussed above, at step 102 a schedule of available shows and their characteristics (content profile) information is created and stored in a database. Applicant acknowledges that the content profiles are analogous to the meta-data including sets of descriptors and/or attributes describing respective pieces of broadcast programming content. However, the schedule of available shows and their characteristics information clearly concerns programming that is already scheduled, and not pieces of broadcast programming content up for consideration to be included in a future, yet to be scheduled, broadcast.

Content profiles corresponding to multiple pieces of content up for consideration for a future, yet to be scheduled broadcast are also not broadcast. *Herz* discloses three schemes for providing content profiles: 1) included as part of an electronic program guide (preferred), 2) transmitted as part of the bit stream of the video program (for digital transmission), and 3) in the vertical blanking intervals of the video program (for analog transmission). Hertz also states "or by other appropriate means," but such means are not disclosed.

*Herz* describes "downloading" electronic program guide data. Typically, with a stand-alone set-top box system, such as TiVo unit or the like, the electronic program guide data is downloaded via a telephone line on a periodic basis. (Applicant notes that for some modern set-top boxes provided by a satellite or cable provider, the electronic program guide data is received via a broadcast channel that is designated for this purpose.) The electronic program guide data only pertains to programming that is already scheduled. An electronic program guide is akin to an electronic version of a TV guide (or similar publication). It lists program schedules and describes attributes of each program (title, plot, actors, *etc.*), some of which may be included in the content profile data. Typically, the electronic program guide enables a user to navigate forward

in the guide to see what upcoming scheduled programming will be available for viewing, enabling the user to arrange his or her schedule to watch a particular program. For TiVo-type devices (that is, personal video recording devices), the electronic program guide also enables a user to schedule recording of an upcoming scheduled program. Accordingly, it would be meaningless to include yet to be scheduled program content in an electronic program guide.

Under 2) transmitted as part of the bit stream of the video program (for digital transmission), and 3) in the vertical blanking intervals of the video program (for analog transmission), the content profile data that is sent via these techniques only pertains to content that is currently being viewed (*i.e.*, a single scheduled program). As stated in Col. 42, lines 21-40,

In the embodiment illustrated in FIG. 4, the set top multimedia terminals 412 sit on top of the television and receive as input the shows being broadcast *and their associated content profiles (either in the bit stream, the vertical blanking interval, or separately as part of the electronic program guide information)*. The set top multimedia terminals 412 have the customer profiles for that residence prestored therein. Set top multimedia terminal 412 may also include means for monitoring which shows are being watched by the customer. From this information, the customer profiles stored in the set top multimedia terminal 412 may be modified by the software of the set top multimedia terminal 412 using the techniques described in Section II.B. above. In other words, each set top multimedia terminal 412 preferably includes means for updating the customer profiles based on what the customer actually watched. However, the set top multimedia terminals 412 do not provide the list of the watched programs back to the head end for adjusting the video programming schedule since a two-way data transmission system would be required. (Emphasis added)

(It is noted that in another embodiment a two-way data transmission scheme is employed for providing feedback related to customer profiles).

Also, as stated in Col. 47, line 66 – Col. 48, line 17,

FIG. 10 illustrates a hardware embodiment of set top multimedia terminal 620. As shown, the video program material and corresponding content profiles are received from the head end 502 by tuner 1002, or the content profiles are separately received at data receiver 1004 along with the electronic program guide information via the dotted line path. If

scrambling is employed, as in the transmission of Pay-Per-View video programming, the scrambled video signals are supplied from tuner 1002 to descrambler 1016 before being further processed by microprocessor 1006 and/or modulated by modulator 1018 for display in accordance with the invention. *If tuner 1002 selects a channel containing video program data in its vertical blanking interval ("VBI data") received from head end 502, the VBI data is supplied directly to microprocessor 1006 and/or the content profile data is supplied to microprocessor 1006 via data receiver 1004. The video data is supplied directly to the descrambler, as necessary, and then to the modulator 1018 for display in a conventional manner.*

In the foregoing paragraph, the "video program data" and "video data" relates to a video program being viewed, while the content profile data only relates to that video program. Thus, the content profile data clearly concerns program content that is already scheduled, as such program content is currently being viewed. Similarly, content profile data that is included in a bit-stream would likewise relate to the video data provided in the bit-stream (the bulk of the bit stream data), and thus concern already scheduled content.

With respect to the claim elements of "wherein the plurality of client systems are coupled to rate in response to a content rating table one or more of the plurality of pieces of broadcast programming content described by the meta-data, the content rating table generated using the meta-data and containing ratings derived from observation of pieces of broadcast programming content having similar descriptors and/or attributes to the descriptors and/or attributes included in the meta-data that have been previously accessed via that client system" and "wherein the one or more client systems are coupled to transmit to the broadcast system the ratings of the plurality of pieces of broadcast programming content," Applicant respectfully asserts that these claim elements are also clearly not taught by *Herz*.

*Herz* clearly does not teach rating individual programming content. Rather, a customer profile is maintained at each set-top box. The customer profile contains collective program characteristics data pertaining to the likes of each customer (or



users of a given set-top box). For example, a customer might like Westerns or Romance movies, and dislike violent movies. Thus, the customer profile would provide high weights for respective characteristics pertaining to Westerns and Romance movies, and a low weights for a characteristic pertaining to violent movies. Notably, the customer profiles do not pertain to individual pieced of content.

As stated in the Summary of the Invention section of *Herz* (Col 4, line 39 – Col 5, line 29, emphasis added),

In accordance with the invention, a method of scheduling customer access to data from a plurality of data sources is provided. Although the technique of the invention may be applied to match customer profiles for such disparate uses as computerized text retrieval, music and music video selection, home shopping selections, infomercials, and the like, in the presently preferred embodiment, the method of the invention is used for scheduling customer access to video programs and other broadcast data. In accordance with the preferred method, objective customer preference profiles are obtained and compared with content profiles of the available video programming. The initial customer profiles are determined from customer questionnaires, customer demographics, relevance feedback techniques, default profiles, and the like, while the initial content profiles are determined from questionnaires completed by "experts" or some sort of customer's panel, are generated from the text of the video programs themselves, and/or are determined by adopting the average of the profiles of those customers who actually watch the video program. Based on the comparison results, one or more customized programming channels are created for transmission, and from those channels, each customer's set top multimedia terminal may further determine "virtual channels" containing a collection of only those video programs having content profiles which best match the customer's profile and hence are most desirable to the customer during the relevant time frame.

Preferably, one or more customer profiles are created for each customer of the video programs. *These customer profiles indicate the customer's preferences for predetermined characteristics of the video programs and may vary in accordance with time of day, time of the week, and/or customer mood. Such "characteristics" may include any descriptive feature suitable in describing particular video programs, such as classification category; directors; actors and actresses; degree of sex and/or violence; and the like. Corresponding content profiles are created for each video program available for viewing and generally indicate the degree of content of the predetermined characteristics in each video program.* An agreement matrix relating the customer profiles with the content profiles is then generated. Preferably, the agreement matrix enables the system to determine a subset of the available programs at a

particular point in time which is most desirable for viewing by the customer. The determined subset of video programs is then presented to the customer for selection in the conventional manner, except that each "virtual channel" includes a collection of the offerings available on all of the originally broadcast channels from the cable system. The "virtual channels" are then generated by the customer's set top multimedia terminal for display on the customer's television. The customer may then select the desired video programming, which may or may not include the programming offered on the "virtual channels." Similar techniques are used at the video head end to determine which video programs to transmit to each node for use in the creation of the "virtual channels" at each customer's set top multimedia terminal.

As described in *Herz*, the customer profile for a given customer may change over time. A scheme is thus disclosed for adjusting customer profiles (see, e.g., Col. 7, lines 14-43). Under the scheme, a customer profile may be adjusted in response to viewing or not viewing a particular program. However, the customer profile does not include information pertaining to that particular program.

Under the Hertz scheme that employs feedback, the feedback data relates to customer profiles, and does not concern ratings of individual program content at all, and particularly does not concern anything to do with rating individual program content that is up for consideration for a future, yet to be schedule broadcast. As stated in Col. 6 line 21 – Col. 7, line 13,

When scheduling video programs at a head end using the techniques of the invention, the agreement matrix is preferably determined from customer profiles of a plurality of customers and the video programming is scheduled using the steps of:

- (a) determining a video program *j* which most closely matches the customer profiles of the plurality of customers of the video programs;
- (b) scheduling the video program *j* for receipt by the plurality of customers and decrementing a number of channels available for transmission of video programs to said customers;
- (c) when the number of channels available for transmission of video programs to a particular customer of the plurality of customers reaches zero, removing the particular customer from the plurality of customers for scheduling purposes; and

(d) repeating steps (a)-(c) until the number of video programs scheduled for transmission equals the number of channels available for transmission of video programs.

In accordance with a currently preferred embodiment of the invention, a passive feedback technique is provided for updating the customer profiles in accordance with the video programming actually watched by the customer. Such a method in accordance with the invention preferably comprises the steps of:

creating at least one customer profile for each customer of the video programs, the customer profile indicating the customer's preferences for predetermined characteristics of the video programs;

creating content profiles for each video program available for viewing, the content profiles indicating the degree of content of the predetermined characteristics in each video program;

monitoring which video programs are actually watched by each customer; and

updating each customer profile in accordance with the content profiles of the video programs actually watched by that customer to update each customer's actual preferences for the predetermined characteristics.

Preferably, the monitoring function is accomplished by storing, at each customer's set top multimedia terminal, a record of the video programs actually watched by the customer at the customer's location and, in the case of a system with a two-way communication path to the head end, polling the set top multimedia terminals of all customers to retrieve the records of the video programs actually watched by the customers at each customer location. Also, from the retrieved records, combined customer profiles may be determined which reflect the customer profiles of a plurality of customers. Then, by determining the agreement matrix using the combined customer profiles for each node, programming channels containing the video programming which are collectively most desired by the customers making up the combined customer profiles may be determined for transmission from the head end to each of the customers connected to the same node.

From above, it is clear that *Herz* does not teach the elements of “wherein the plurality of client systems are coupled to rate in response to a content rating table one or more of the plurality of pieces of broadcast programming content described by the meta-data, the content rating table generated using the meta-data and containing ratings derived from observation of pieces of broadcast programming content having

similar descriptors and/or attributes to the descriptors and/or attributes included in the meta-data that have been previously accessed via that client system” and “wherein the one or more client systems are coupled to transmit to the broadcast system the ratings of the plurality of pieces of broadcast programming content.”

In summary, it is very clear that *Herz* does not teach each and every claim element of claim 28. Accordingly, the rejection of claim 28 as anticipated by *Herz* is improper and should be withdrawn. With respect to claims 29 and 30, each of these claims depend from claim 28 and thus are patentable over the cited art for at least the same reasons presented above in support of the patentability of claim 28.

With respect to claim 1, this claim is a method claim including claim elements that are analogous to the claim elements of system claim 28 discussed above. Accordingly, claim 1 is patentable over *Herz* for reasons similar to those presented above in support of the patentability of claim 28. Furthermore, each of claims 2, 4-8, 10-12, 31, and 32, which depend either directly or indirectly from claim 1, is likewise patentable over the cited art for at least the same reasons presented above in support of the patentability of claim 28.

With respect to claim 14, this claim recites an apparatus for performing the server-side operations of the system of claim 28. Therefore, claim 14 is patentable over *Herz* for similar reasons to those presented above in support of the patentability of claim 28. Additionally, each of claims 15-17, which depend from claim 14, is likewise patentable over the cited art for at least the same reasons presented above in support of the patentability of claim 28.

With respect to claim 18, this claim recites an apparatus for performing the client-side operations of the system of claim 28. Therefore, claim 14 is patentable over *Herz* for similar reasons to those presented above in support of the patentability of claim 28. Additionally, claim 19, which depends from claim 18, is likewise patentable

over the cited art for at least the same reasons presented above in support of the patentability of claim 28.

With respect to claim 21, this claim recites an apparatus for performing the server-side operations of the system of claim 28, plus additional operations relating to rating pieces of content. Therefore, claim 21 is patentable over *Herz* for at least the reasons presented above in support of the patentability of claim 28. Additionally, each of claims 22 and 23, which depend from claim 21, is likewise patentable over the cited art for at least the same reasons presented above in support of the patentability of claim 28.

With respect to claim 24, this is a Beauregard claim (*i.e.*, machine-readable medium having instructions to perform a method) that includes the server-side operations of the system of claim 28. Therefore, claim 24 is patentable over *Herz* for similar reasons to those presented above in support of the patentability of claim 28. Additionally, claim 25, which depends from claim 24, is likewise patentable over the cited art for at least the same reasons presented above in support of the patentability of claim 28.

With respect to claim 26, this is a Beauregard claim (*i.e.*, machine-readable medium having instructions to perform a method) that includes the client-side operations performed by the apparatus of claim 21. Therefore, claim 26 is patentable over *Herz* for similar reasons to those presented above in support of the patentability of claim 21 (and thus claim 28). Additionally, claim 27, which depends from claim 26, is likewise patentable over the cited art for at least the same reasons presented above in support of the patentability of claim 28.

### Conclusion

Overall, none of the references singly or in any motivated combination disclose, teach, or suggest what is recited in the independent claims. Thus, given the above amendments and accompanying remarks, independent claims 1, 14, 18, 21, 24, 26,

and 28 are now in condition for allowance. The dependent claims that depend directly or indirectly on these independent claims are likewise allowable based on at least the same reasons and based on the recitations contained in each dependent claim.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 292-8600.

*Charge Deposit Account*

Please charge our Deposit Account No. 02-2666 for any additional fee(s) that may be due in this matter, and please credit the same deposit account for any overpayment.

Respectfully submitted,

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